nodules and cancers. Thus the inhibition of polyploidization persists in the altered population of hepatocytes after DENA/AAF treatment and seems to be an essential feature in this model of hepatocarcinogenesis.

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SISTER CHROMATID EXCHANGE AND METASTATIC POTENTIAL OF B16 MELANOMA VARIATNS

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The metastatic potential of tumours has been reported to correlate with genetic instability. We have therefore investigated whether genetic recombination shows any correlation with the metastatic ability in B16 murine melanoma variants.

SCE incidence (i.e. proportion of cells exhibiting SCEs) increased with increase in metastatic ability. Cell lines derived from pulmonary metastatic deposits showed greater SCE than the primary BL6 cell line. The former rejoined bleomycin-induced strand breaks at a greatly reduced rate as compared with the primary tumour. Progression from primary to the metastatic state also showed a chromosomal transition into a predominantly hypertriploid state. Not only did a majority of SCEs occur in this hypertriploid subpopulation but also they were easily induced in this subpopulation by mitomycin C and ethylmethane sulphonate. It is suggested that cells with metastasizing ability might arise within this genetically unstable repair-defective subpopulation by a process of genetic recombination.

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BIOCHEMISTRY OF OXIDATIVE STRESS

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Cells physiologically are exposed to oxidative challenge and maintain a delicate prooxidant/antioxidant balance. Oxidative challenge and carcinogenesis are linked in a number of ways. This refers to the generation of reactive metabolites to form ultimate carcinogens as well as to oxygen-derived species that modulate the process.

Chemically, free-radical compounds and electronically excited compounds (singlet oxygen; excited carbonyls) are of interest, in addition to epoxides, hydroperoxides and other structures. Cellular control of the levels of such compounds is exerted both enzymatically and non-enzymatically. The latter includes the role of antioxidants such as vitamins E and C. Regarding enzymatic defense, one sector includes the Phase II group of detoxication enzymes, many of which are under the control of DNA methylation; DNA hypomethylation leads to an enhanced expression of some GSH tranferases and NADPH: quinone oxidoreductase and other (indirect) antioxidant enzymes, concomitant with a diminished expression of cytochrome P-450 forms. This response resembles the pattern observed in hepatic noduli.

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METHOTREXATE INDUCED FRAGILE SITES IN DIFFERENT CHINESE HAMSTER CELL LINES

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Fragile sites (FS) on human chromosomes have received much attention because of their association with non random chromosomal aberrations associated with tumours. Recent studies show that FS are not limited to the human genome. We have initiated a study to examine the expression of folato-sensitive FS using a Chinese hamster diploid cell line, an immortalized and a transformed one. The purpose was to evaluate a possible correlation between the presence of specific FS and the in vitro evolution of these different cell lines.

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GENETIC ACTIVITY OF CHLORINATED ETHANES. CYTOGENETIC ANALYSIS ON MAMMALIAN CELLS IN CULTURE

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Chlorinated ethanes are widely used in industrial processes, textile processing and agriculture. The increased use of these chemicals leads to the increasing possibility of exposure to both workers and general population. We have studied the effects of five chlorinated ethanes on chromosomes of V79/AP4, a Chinese hamster cell line. The most notable finding was a marked excess of centromeric breaks.

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